How to assess FAIRness to improve crediting and rewarding processes for data sharing? A step forward towards an extensive assessment grid

Romain David, Laurence Mabile, Mohamed Yahia, Anne Cambon-Thomsen, Anne-Sophie Archambeau, Louise Bezuidenhout, Sofie Bekaert, Gabrielle Bertier, Elena Bravo, Jane Carpenter, et al.

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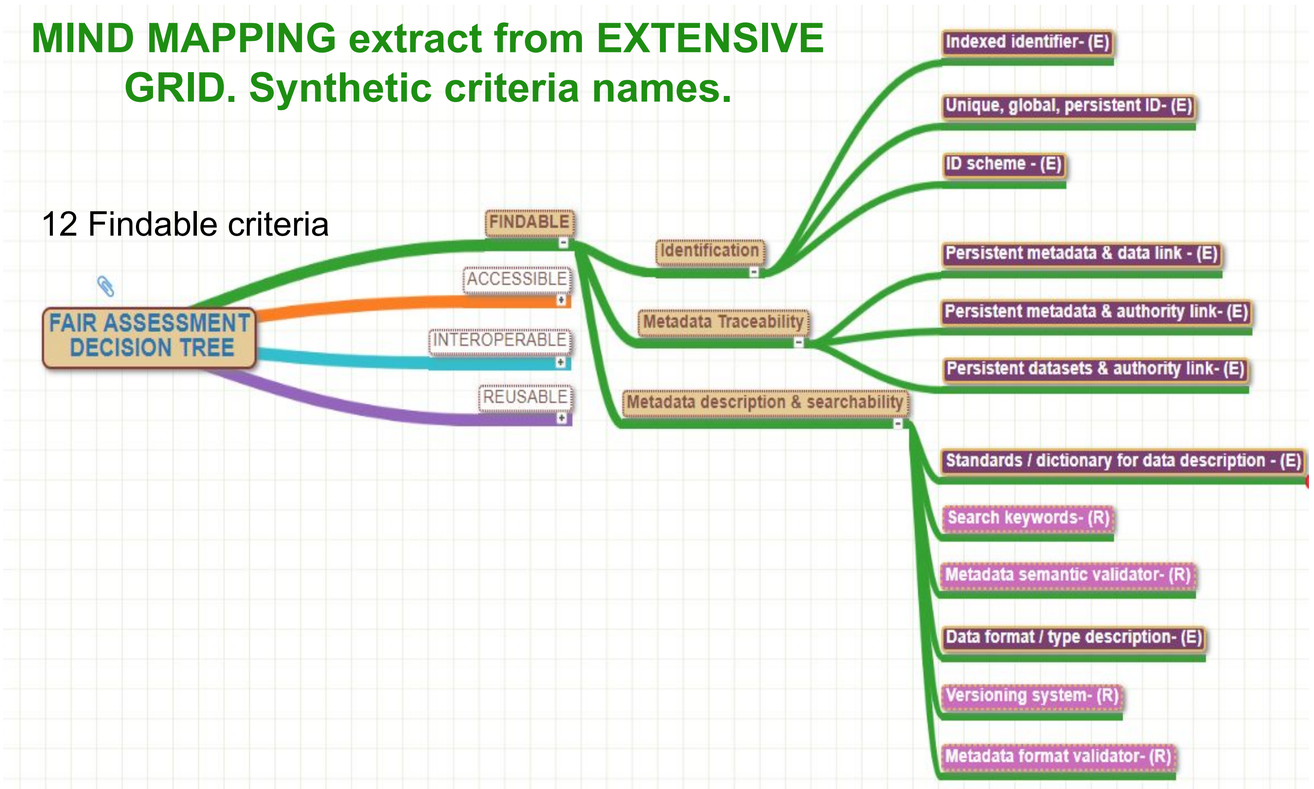
In order to foster data sharing, the RDA-SHARC (SHAring Rewards & Credit) interest group has been set up to unpack and improve crediting and rewarding mechanisms in the data/resources sharing process.

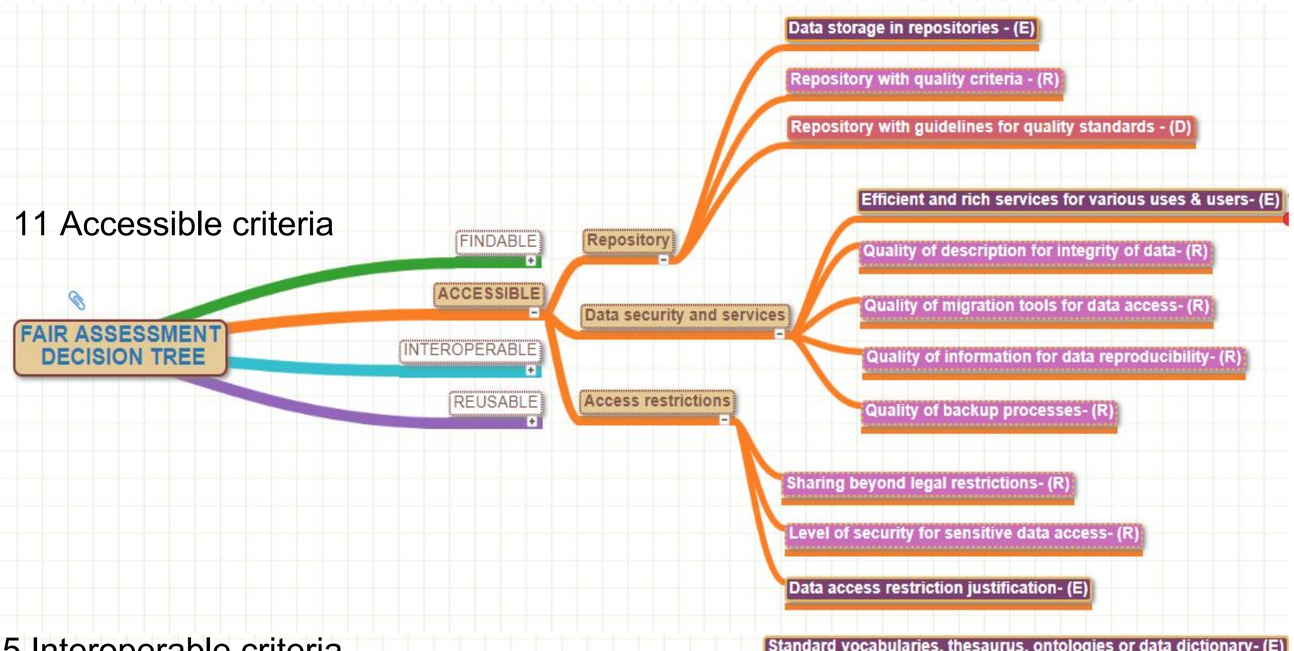
As part of the objectives, **one extensive FAIRness external assessment grid** is being developed using criteria to establish if data are compliant to the FAIR principles (Findable/Accessible/Interoperable/Reusable). The objective is to **promote a FAIRness literacy** to improve scientists sharing behaviours.

MIND MAPPING extract from EXTENSIVE GRID. Synthetic criteria names.

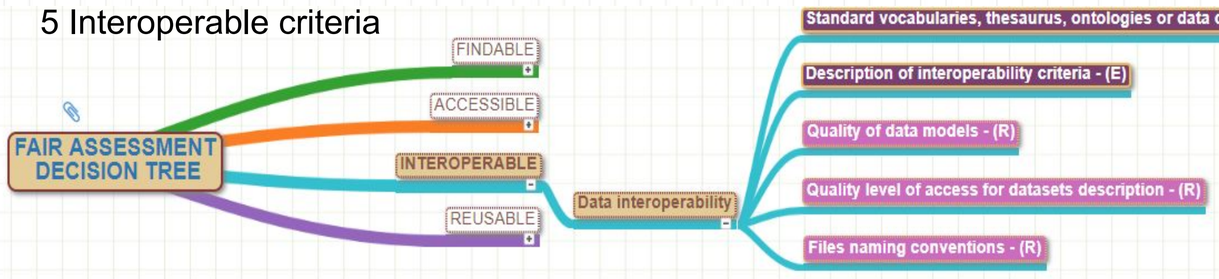
12 Findable criteria



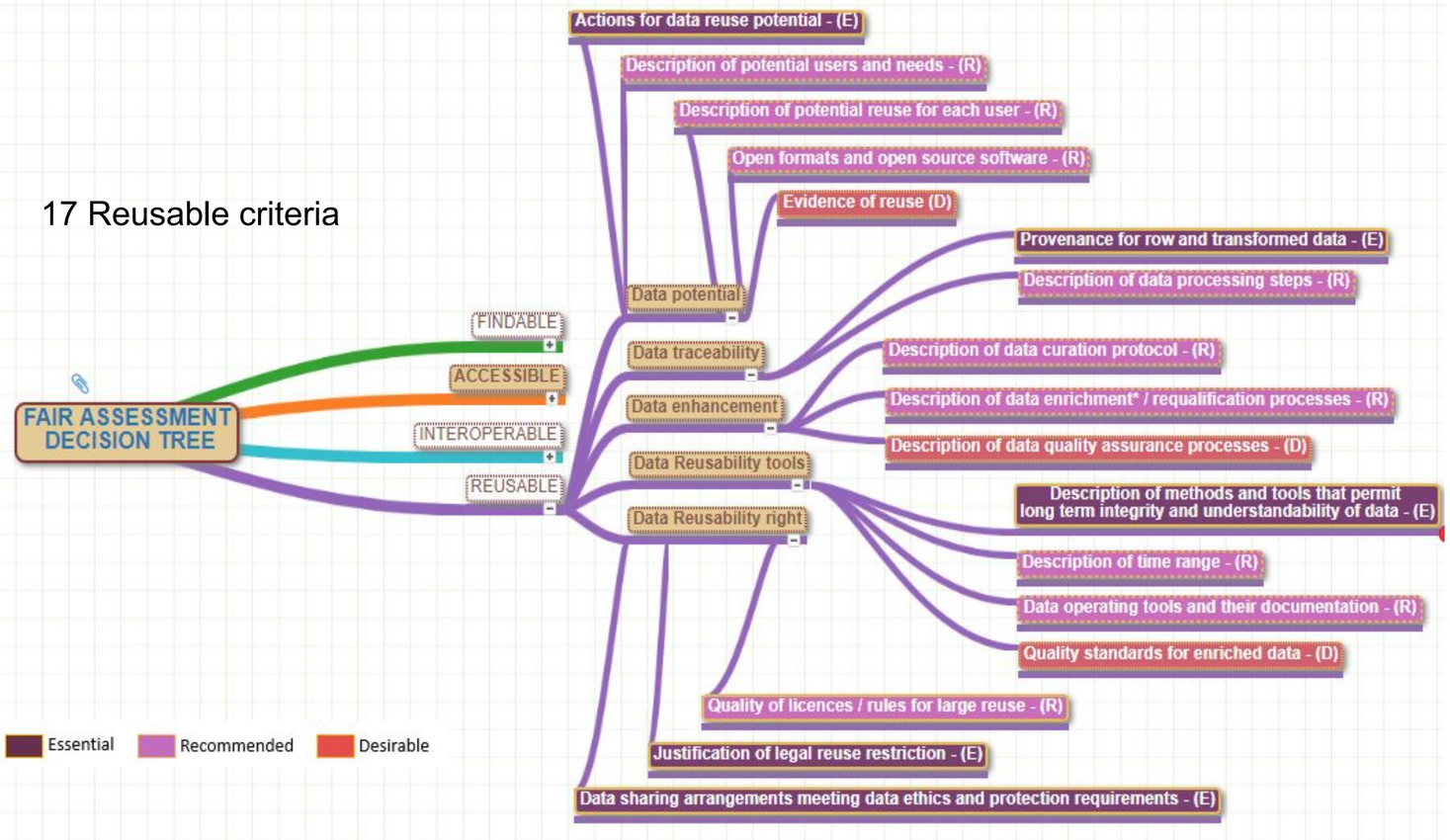
11 Accessible criteria



5 Interoperable criteria



17 Reusable criteria



BUILDING 1st DRAFT OF AN EXTENSIVE FAIRNESS ASSESSMENT GRID

The grid displays a **mind-mapped tree-graph structure based** on previous works on FAIR data management (Reymonet *et al.*, 2018; Wilkinson *et al.*, 2016; Wilkinson *et al.*, 2018; and E.U.Guidelines about FAIRness DMPs*). The criteria used are based on the work from *FORCE 11**, and on the basis of the Open Science Career Assessment Matrix designed by the *EC Working group on Rewards under Open science.*

MAIN PROPERTIES to be generic and trans-disciplinary :

- As simple as possible (understandable by non IT people),
- Step by step processes,
- Easy to complete (due to FAIR skills availability in evaluation processes),
- Based on information given by researchers in career activity reports,
- Creative Commons author license.

ASSESSMENT PROCESS

Designed as a **decision tree in each FAIR Principle**

3 Levels of criterion importance : **essential / recommended / desirable**
4 possible answers/criteria (only one answer per criteria):
□ **Never/NA** □ **If Mandatory** □ **Sometimes** □ **Always**
Evaluation based on scoring each answer for each possible answer in the 4 FAIR principle
*ex: for **Findable***
***2/8** Never/NA; **3/8** If Mandatory; **1/8** Sometimes; **2/8** Always (Total = 8).*

Recommendations based on this scoring.

LESSONS LEARNT FROM FIRST TESTS

- Essential criteria are not always understandable without training.
- Implementation of some criteria can be time consuming and may need some technical advisor / operator support.

POSSIBLE OPEN ISSUES

- Develop gradual assessment of researcher **FAIRness literacy.**
- Help identifying needs to build FAIRness guidelines for a better researcher sharing capacity (based on rewards and credits / *How to do and Step by step* tools),
- Develop step by step curation processes for FAIRness compliance implementation.

NEXT STEPS

- **RDA P13** Sharc's session: please attend!
- **A crowd sourced paper** on FAIR criteria evaluation with open contribution from interested Working Groups in RDA community
- Tool testing **in specific networks and in various scientific communities** (IMI FAIRplus/Elixir community; BiodiFAIRse, Belmont-PARSEC, Citizen science networks, agronomy community...)

INPUT NEEDED FROM RESEARCH COMMUNITIES

To implement a fair appraisal of the sharing process, appropriate criteria must be selected in order to design optimal generic assessment grids. This process **requires involvement, time and input from volunteer data producers / users / scientists in various fields**. The aim is to get feedback from a larger community as to the validity of the criteria over different fields.

A survey was launched in April 2019 to assess the usability and the validity of the decision tree and the corresponding grid. If you produce or use data, **please participate** in the development of the FAIRness assessment grids by completing the online questionnaire**. It will help you get credit back for your efforts!**

HOW? Join the SHARC RDA community

and the SHARC interest group at www.rd-alliance.org/groups/sharing-rewards-and-credit-sharc-ig
You will then be informed in due time.

* Reymonet N et al. (2018). Réaliser un plan de gestion de données « FAIR » : modèle. ⟨sic_01690547v2⟩
* Wilkinson MD et al. (2018). A design framework and exemplar metrics for FAIRness. Scientific data, 5, 180118. doi:10.1038/sdata.2018.118
* Wilkinson MD (2016). The FAIR Guiding Principles for scientific data management and stewardship. Scientific data, 15, 160018. doi: 10.1038/sdata.2016.18.
* E.U. European Commission Directorate-General for Research and Innovation report: Evaluation of Research Careers fully acknowledging Open Science Practices; Rewards, incentives and/or recognition for researchers practicing Open Science. 2017
* E.U. European Commission Directorate-General for Research and Innovation report: H2020 Programme Guidelines on FAIR Data Management in Horizon 2020, Version 3.0, 26 July 2016

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